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NOTES.

THE EXPRESSION OF THE EYES IN PHOTOGRAPHS TAKEN WITH MAGNESIUM FLASH LIGHT.

IT is generally maintained that the eyes play no part in the expression of a face; the mouth being the key which interprets the grave or gay sentiment they seem to convey. We shall not dispute the assertion, as we here mean by expression merely the appearance the eyes present with expanded or contracted pupils.

We have frequently remarked upon the peculiar brilliancy of the eyes in well taken photographs with the instantaneous flash. Recently, however, we were shown a number of pictures in which the eyes of the sitter had a staring, owl-like look, which we confess added very little to the beauty of the expression.

The cause was at once attributed to the flash. It so startled the poser, the photographer said, that a frightened look was the inevitable consequence. Knowing the brief duration of the exposure, we were convinced that the impression on the plate must necessarily have been made before the sitter was aware. Moreover, we reasoned, if the brilliancy of the light affected the eyes, it would have caused a contraction and not a dilation of the pupil.

A certain amount of expansion of the pupils gives, as is well known, a beauty and brilliancy to the eyes. In a strong light, the pupils are very much contracted, and the *expression* is not so beautiful as when the eyes are seen in "a dim religious light." In darkness the pupils are much dilated, and probably have the owl-like look of the photographs referred to.

On questioning the photographer, we found that, fearful of impressing the highly sensitive plate he made use of, he had carefully extinguished all the lights in the room before making the exposure with the flash.

Now, if it be true, as facts seem to warrant, that the magnesium light will produce an impression in less than one-tenth of a second, we readily see that the pupils, responding to a much slower nervous impression, can neither contract nor expand in so short a period of time, but must remain in the condition in which they happen to be—in absolute darkness, widely expanded; in a subdued light, dilated only sufficiently to give a brilliancy and beauty of expression.

It is worse than useless to turn out the lights when making an exposure. The most sensitive plates are not affected in the camera with several minutes' exposure to the light from a gas jet. Care is only necessary to prevent the flame shining directly in the lens. Indeed, if the lights are not too intense, they form in many

cases a pleasing feature in the photograph itself. We have a picture representing a Christmas tree lit up with little candles—the effect is really very beautiful and novel. If one should desire to introduce a comparatively strong light in the scene represented, it would be advisable to keep the lens capped until just ready for making the exposure. And let us here say, while on the subject of securing good expressions, the only rational way of making an exposure with the instantaneous flash is to employ a simple contrivance for automatically igniting the powder, so that the sitter shall remain in blissful ignorance of the time when everything is ready. When a taper or match is used to set off the charge, there is not only danger of burning the fingers, but we are sure to attract the attention of the sitter and spoil the pose. A very simple and effective apparatus has been devised by our publishers for making the exposure unawares—a gentle pressure of a bulb is all that is necessary, at the very moment when one sees a pleasing expression on his sitter.

ACTINISM, SO-CALLED.

There is hardly a term more glibly made use of by the photographer than "actinism." With what a peculiar pride he explains to the uninitiated that the production of the image upon the sensitive film is due to the agency of a mysterious force resident in the sunbeam.

Actinism, or the actinic force, with a certain class of quasi-scientific people, has come to be a tangible reality—a modern phlogiston, which unites with certain bodies, or is separated from them.

Indeed, some of our scientific text-books, particularly those dedicated to the chemistry of photography, are responsible for the antiquated idea of actinism as a separate and distinct force in nature. The authors grow eloquent in telling of the trinity of the three principles in the solar ray: the luminous, the calorific, and the actinic.

One is led into the belief that the light, whatever kind of light it may be, which operates in producing the chemical changes by which photography is made possible, is something absolutely and completely independent of the ordinary light which produces an impression upon the retina. Now, the truth is, as modern science has shown and as Becquerel nearly a half century ago maintained, the radiations from any source of light extending from the extreme violet to the extreme red differ only in the rate and in the magnitude of the vibrations which are at work. The luminous, the heat, and the chemical rays are therefore really part and parcel of the same principle, which is a system of vibrations or undulations varying in the length and rate of the waves from one end of the spectrum to the other. The difference between the light at one end and at the other is analogous to the difference between notes of high pitch and notes of low pitch in music.

In light, as in sound, therefore, we have a system of regular disturbances of a medium which produces long and short waves. Photography is merely a means for securing a permanent record of these disturbances of the ether. The salts of silver which are employed are so constructed that the action of the short, rapid waves is necessary to start the molecules in a shudder or trembling. The state of equilibrium of the molecules is such that it is thrown by the impinging of the short, rapid waves

into a new condition. The molecules begin to rearrange themselves; the greater number taking up and propagating the violet wave motions, while the others follow in the line of the longer waves.

The question arises, Why should not other chemical combinations be set into a state of trepidation by the influence of the long, slower moving waves of the red and yellow?

We have evidence that those molecules which absorb the red rays are more complex than those which absorb the blue, when dealing with the same substance, but there remains much to be done in experimentation before the solution of the problem can be approached.

SENSITOMETER FAITH.

Reliance upon the indications of the sensitometer in judging of the rapidity of a dry plate, is almost an article of photographic belief with many of the votaries of our science.

With implicit faith in the registered figures upon the box, their hopes are as high as the numbers they demand, and when the results do not accord with their expectations, the plates come in for censure and not the sensitometer.

At the best, sensitometers can give only approximate measurements, and in general are poor standards to pin one's faith to. Still the demand goes forth for high sensitometer numbers, and the plate makers are accommodating. But even the plate makers sometimes have reliance on the registry.

THE monotony of photographic literature is occasionally varied by funny errors made by those ignorant of the technical terms of the languages. The German furnishes good examples. In a recent periodical article we find in a formula for development with hydroxylamine, "one part *etching soda* to eight parts water." The photographer who has tried the new agent, and probably found it not to work just to his satisfaction, will imagine he has discovered the remedy in the new chemical recommended, and accordingly will fly to the chemist's shop for the etching soda, only to mystify the poor druggist's clerk. He is fortunate if he finds a German chemist who will help him out of his quandary by telling him that *Aetz-natron* is caustic soda—just the very plagued thing which blistered up his plate. In the same journal we find *Blut-laugen-salz* (ferricyanide of potassium) rendered as blood-lye-salt. This is almost on a par with the translation of *Eis-essig* (glacial acetic acid) as iced vinegar. We have even seen carbon prints given the euphonious name of charcoal pictures.

PSEUDO-SCIENTIFIC PHOTOGRAPHIC THEORIES.

BRAIN PICTURES—PHOTO-CHEMICAL ACTION IN VISION.—The *New York Times* of January 15th, regales its readers with a column or more of the marvelous, entitled Brain Pictures—a photo-physiological discovery that the brain is a sort of recording camera. A frozen slice from the cerebrum is made to record wonderful things.

These weird tales with a quasi-scientific bearing, are often devoured in full faith of their genuineness. The present story probably had its origin in the publication of

the results of the experiments made a few years ago to determine whether the retina has the power to retain for a brief time impressions made upon it.

As well as we can remember, the result of these investigations, which were conducted in a truly scientific way, showed that the bacillary layer of the retina, consisting of a series of elongated bodies called rods and cones, is directly concerned in vision.

What the particular part of these rods and cones may be, by which the change takes place from light to the sensation of vision, has not been determined, but it was found that the outer ends of the rods are suffused with a purple coloring matter called visual purple, which has the property of being turned yellow and then bleached under the influence of light, while in the dark the purple coloring matter is regenerated, provided the eye is kept fresh.

The visual purple possesses, therefore, some of the properties which we should expect on the supposition that vision is produced by a photo-chemical action, but its changes are not sufficiently prompt to allow us to suppose that it is through its means that vision is possible. There are, however, some arguments to be urged in support of the photo-chemical view.

The sensation remains as long as the eyes are kept open and light supplied with no apparent charge beyond a somewhat greater sensitiveness of the organ on the first admission of light after it has been kept for some time in the dark, and yet when the light is cut off, as in closing the eyelids, the sensation stops at once.

The duration, moreover, depends upon the color, being much longer for blue than for red light.

A DURABLE MIXED AND CONCENTRATED PYRO DEVELOPER.

F. Kaderauck, of Brünn, gives, in *Photographische Rundschau*, a modification of Dr. Lohse's concentrated developer, as follows:

Distilled water,	400 c. cm.
Carbonate soda,	25 "
Carbonate potassa,	25 "
Carbonate ammonia,	10 "
Sulphite soda,	160 "

Dissolve with heat and cool quickly, then add pyro, 18 c. cm.

The brown solution is carefully filtered, and kept in a cool, dark place. It keeps a long while.

For use, say for cabinet plate, take 40 c. cm. of water and add 10 c. cm. of the developer. If the plate has been fully timed, the image will quickly appear.

The color of the negative is gray, like that produced by oxalate, affording brilliant prints.

If there is any doubt as to exposure, do not add at once the whole 10 c. cm. of developer, but proceed gradually, and have ready the solution of bromide of potassium.

For under-exposed plate, add one or two drops more of ammonia (1–20), but it is preferable to reduce the normal developer (10–40) with two to three times its volume of water, and, after all the details come up, to apply fresh, strong developer (10–40), finally strengthening with bromide.

A NEGLECTED METHOD OF SILVER PRINTING.

Read before the Photographic Society of Philadelphia, by Charles L. Mitchell, M. D.

DURING the past five or six years, and with the advent into popular use of the dry plate processes of photography, considerable attention has been given to different methods for producing by photographic processes various artistic effects in printing the picture, in simulation of those obtained by the mechanical processes of the engraver and etcher. The albumen silver print reflects the general popular taste and when artistically made is always pleasing, but the gloss and brilliancy of its surface soon becomes monotonous and even wearying, and the eyes seek relief in the mellow tones and soft outlines of a well executed etching or engraving. This has led to the introduction of the various forms of bromide paper, "Alpha" paper, platinum prints, etc., etc., all of which seek to reproduce on a dead or mat surface paper, by different chemical methods, the blacks, purples, grays, and various half tones, obtained by the skilful use of the engraver's tool, and to give effects corresponding to those found in a fine line engraving.

The use of these papers has led to considerable change in the styles of photographic printing, and although the albumen print will probably always be to a very large majority of persons "the photograph," and the only form recognized by that title, there will remain a considerable minority, to whom the other more novel and more artistic styles of photographic printing will prove most interesting and enjoyable. The use of bromide paper for preparing prints and particularly for enlargements, is rapidly increasing, and yet the writer feels compelled to acknowledge that after considerable experience in its use, he has frequently been disappointed in the results obtained from it. For enlargements, which can afterwards be worked up with the stump and crayon, it leaves nothing to be desired, but for contact prints and enlargements of moderate size, which are to receive no further finishing, it must be confessed that there is often in the finished bromide print a lack of the finer details of the picture, which is rather disappointing when compared with a good albumen print prepared from the same negative. Furthermore, the process is to a certain extent, one which must be carried on in the dark—in a double sense—for not until the paper is exposed, and the latent image has commenced to show itself under the influence of the developing solution, does the operator know whether his exposure has been properly timed so as to secure the best print, and it is then too late to more than partially remedy the difficulty by influencing or modifying the remainder of the already partially completed development. It is true a succession of trials will soon determine the proper exposure for any one negative, but this takes time and is expensive, so that among photographers, and particularly amateurs, to which class the writer now mainly addresses himself, the remark is often heard, "Yes, bromide prints are very beautiful when you can get them just right, but I find much difficulty in doing so, and but few few negatives produce fine results. For general work I prefer a good albumen print."

The purpose of the writer this evening is to call attention to a style of silver printing, once quite popular but now fallen into comparative disuse, which is, while probably no better in its finished result than the bromide process at its best, yet considerably more certain in its result, at least, as easy in its execution, and affords a variety in effect much superior to that produced by the bromide process. I allude

to the old method of printing on plain paper, sensitized with chloride of silver. Years ago, in the time of the old wet plate processes, this method of printing was quite popular, but of latter years it seems to have dropped almost completely out of sight, and there is but brief mention of it made in the different technical works on photographic printing. Yet it gives results which are so extremely beautiful, that it seems but proper that more attention should be directed to it, and particularly by those artistic photographers who are always seeking new and beautiful photographic effects. In portrait work it gives beautiful, soft outlines and warm tones, and for landscapes, architectural studies, genre pictures, copies of old engravings, etc., it gives results which for softness, delicacy and perfection of tint cannot be surpassed by any other method with which the writer is acquainted. With it a great variety of tones can be obtained, ranging from a sepia or a rich brown to a deep purple or even black, capable of reproducing in many instances the same soft and warm tints of an old mezzotint or copper plate engraving. Furthermore, as the process is conducted in the same manner as in ordinary albumen printing, the period of exposure is not an uncertain quantity, but the printing can be watched as it goes on under the printing frame, and the depth of the print and consequently the character of the subsequent tone, regulated according to the taste of the operator.

The details of the process are briefly as follows: the paper used should be an ordinary plain white paper—Rives, for instance—with a moderately smooth surface. This is to be salted in the usual manner with a soluble alkaline chloride (sodium or ammonium), a small quantity of gelatine or albumen being added to the bath, so as to give a slight size to the paper, and the paper subsequently well dried. Such paper can generally be procured from the dealers, already prepared, and the writer has been in the habit of using Morgan's Salted Mat Surface paper, obtained from Messrs. McCollin & Co., of this city. Other varieties of white paper with a rougher surface, corresponding in grain to the "C" Bromide paper, may be prepared in a similar manner, and the writer hopes to be able to make further experiments in this direction.

This prepared and salted paper is now to be sensitized. This is done by floating it on a sensitizing bath composed of fifty grains each of silver nitrate and ammonium nitrate to the fluid ounce of water. This bath should be kept slightly alkaline by the presence of a small quantity of silver carbonate (produced by adding a few drops of a solution of sodium carbonate to the bath), the clear supenatant liquid being always poured or filtered off from the precipitated silver carbonate before the bath is used. The paper should be allowed to float on this bath for from three to five minutes, three in summer, five in winter, and then hung up to drain and dry. All these operations must, of course, be performed in a darkened room, the same as in silvering albumen paper. When thoroughly dry, the sensitized paper must be fumed with ammonia for fifteen minutes, in the fuming box, and is then ready to print. This is done by exposing it, under the negative, to the sun, in the usual printing frame. The paper prints rapidly, and from time to time the frame must be removed to a dark place and the progress of the printing inspected. Here is one of the great advantages of this process over the Bromide process, for the operator can see just what he is doing, and can at any time stop the printing when the color of the print shows it to have gone far enough. The prints when removed from the printing frame, are to be soaked in a bath composed of acetic acid one oz., water one pint, for about fifteen minutes, and then this poured off and the prints washed with half a dozen different changes of

water, until nearly all the free silver has been removed. They are now ready for toning. The toning bath used is that formulated by Dr. E. L. Wilson, and is composed as follows:

Water,	32 fluid oz.
Acetate Sodium,	60 grains.
Chloride Sodium,	60 "
Chloride Gold,	4 "
Nitrate Uranium,	4 "

" neutralize the gold and uranium, previously dissolved in a little water, with sufficient bicarbonate soda. Before using, add gold to renew the bath, as necessary."

The prints are to be introduced into this bath, one or two at a time, and allowed to remain there until the proper tone is reached, the dish being kept gently in motion during the operation, so as to avoid uneven toning. This portion of the operation requires careful watching, as, owing to the porous and absorbent character of the paper the prints tone much more quickly than the glossy albumen prints. A few minutes is amply sufficient, and for the lighter tones of sepia and brown, it is enough to but dip them in the toning bath for only a few seconds. A little experience will soon indicate the proper length of time. After removal from this bath they are to be rinsed with several waters and then transferred to the fixing bath. This is best made as follows:

Hyposulphite Sodium,	2 oz.
Salt,	1 oz.
Bicarbonate Soda,	½ oz.
Water,	1 pint.

Any of the ordinary hypo baths used for fixing prints will answer equally well, however. The prints are allowed to remain in this bath for about fifteen minutes, then removed, well washed in several changes of water, soaked for about ten or fifteen minutes in a bath of a strong solution of alum, to remove the last traces of hypo, and then thoroughly washed in running water for several hours. They are now finished, and can be dried by hanging them on a line or by pressing them between blotters; the latter is best. They can then be appropriately trimmed and mounted as desired. The writer has found it to be of an advantage to render them more pliable by dipping them in a 10 per cent. solution of glycerine in water just previous to drying them. They dry rather more slowly, but they mount much more evenly and smoothly. The prints which I now have the pleasure of showing you, will illustrate much better than I can describe the different tones which can be obtained by this process. They represent landscapes of various characters, and also some copies of engravings, and I think will show fairly well the great range of tints and tone effects capable of being produced by this method of "mat printing," if I may so term it. These different effects can be produced by a little study of two particular parts of the process—the printing and the toning. Deep printing and quick toning will give sepias and browns; deep printing and long toning will give purples and blacks; light printing and short toning will give light sepia tints, and light printing and long toning will give cool grays and slate tints. Various intermediate effects between these can be produced with a little experimenting. The process is comparatively easy, sure of good results, and not expensive.

PHOTOGRAPHIC FORMULÆ AND THEIR ABSURDITIES.

IN common with other arts and sciences in which chemicals and formulæ for the use of the same are constantly employed, photography must certainly confess to having a fair proportion of the absurdities so often seen in these written directions.

We are firm in the belief that the great majority of formulæ have been given in perfect good faith by their authors, or, in other words, that no desire to mislead has been present in their minds when the formulæ were originally framed.

A formula is naturally supposed to indicate the different substances, and the quantities of the same, required to fulfil a given purpose. If the question were to be put to the author of a formula, whether any of the matters contained in it were useless, he would most probably resent such a seeming impertinence.

Now, some very useful formulæ have been given by operators and practical photographers, by no means good chemists, which at first sight seemed ridiculous, the whole affair being complicated by the presence of substances apparently inert or injurious. The formulæ, after falling into the hands of gentlemen-chemists and amateur scientists, whose knowledge of practical photography was even less than the chemical knowledge of the framer of the formula, would often be violently attacked by the latter gentlemen, and the unfortunate photographer overwhelmed with an avalanche of long-winded and pedantic scientific verbiage. Time, the great rectifier of all things, has, however, almost invariably proved that the working directions given by the practical man were right at the start, or so nearly so as to need but little alteration or correction.

This whole matter, nevertheless, has a reverse side. The journals devoted to our craft are teeming with formulæ given not as deductions from practice or matured experiment, but as note-book jottings, so to speak, of amateur dabblers. Complaints are constantly being made of the complicated, confusing and altogether unscientific manner in which, for example, the formulæ for developers are sent out. The same may be said of those for the gold toning bath. These two unfortunate solutions seem to be the scape-goats on which are loaded the sins of whole nations of the would-be-scientific amateur. The little grain of pure gold in the toning bath is quite smothered in the dross of large quantities of carbonates, acetates, chlorides, tungstates, biborates, or even strange salts like nitrate of uranium, etc., with the most precisely worded directions for the bath to be used, freshly made or two weeks old, improving with age; to be hot or cold when used, to filter or not to filter, to be careful to throw it into the residues, or to be sensible and pitch the whole thing down the sink—and much more to the same effect. As to the formulæ for the negative developer, we shall simply say that any one fond of a good laugh should look the matter up in the journals of the last few years. The comical part of it all is that no sooner does the modern amateur get into photographic difficulties of any kind, than he blames the developer and publishes a new formula. All honor to him if the new formula has indeed helped him out!

An English contemporary has published an analysis of the developing formulæ as given by sixty manufacturers of dry plates. The moral to be learned from such a table as that referred to is, that the principles upon which the different substances in the developer act, both when alone and when in combination, should be thoroughly

learned. Any operator, professional or amateur, will find it to his advantage to study out the action of the developer; after which he will be easily master of the whole process of development, and the rivalries of different formulæ will become a matter of indifference to him.

Before concluding, we desire to give a curiosity in the shape of a photographic formula, which we have no doubt will be relished by all of our readers, but especially by those whose connection with the art antedates the gelatine plate.

FORMULA FOR INSTANTANEOUS PHOTOGRAPHY WITH WET COLLODION.

Take 14 oz. plain collodion and excite as follows:—Add 3 drops tincture of of iodine. Shake well, and add 1 oz. iodide of silver.

TO MAKE IODIDE OF SILVER.

In 2 oz. distilled water dissolve 50 grains nitrate of silver, also, 40 grains iodide of ammonium in 2 oz. water; pour together slowly and wash the precipitate very thoroughly, lastly with alcohol to remove all the water.

Now take 4 oz. alcohol and add 40 grains bromide of ammonium, 100 grains iodide of ammonium, and 10 drops *fluoride of ammonium*. When dissolved add the above prepared iodide of silver, and shake well so that it may be all taken up by the solution. The above manipulation must be done in the dark.

NITRATE OF SILVER BATH.

Distilled Water	54 oz.
Nitrate of Silver	4 "

Dissolve.

Then to 16 drops of alcohol add 4 grains of iodide of ammonium, now dissolve ¼ oz. loaf sugar in a little water and add to it 30 drops nitric acid. Put all together into a porcelain dish and raise the heat to about 60°. When cold filter for use.

DEVELOPING SOLUTION.

Water,	8 oz.
Boracic Acid,	¼ "
Proto-Sulphate of Iron,	¼ "
Nitrate of Potash,	¼ "
Alcohol,	¾ "
Oil of Cassia,	2 drops.

Let this serve as a warning to any who may be tempted to complicate their formulæ or working directions.

ELLERSLIE WALLACE.

RELATION OF THE WAVE LENGTH OF LIGHT TO ITS INTENSITY.—Ebert, in *Annalen der Physik und Chemie*, No. 11, gives the results of extensive study of the question whether the velocity of light depends upon its intensity. He shows that changes in wave length of only $\frac{1}{200000}$ of their value, or changes in velocity of light amounting to 1.5 kilometers, can be estimated by the employment of interference fringes. Various sources of light were employed. It was found that the wave length and the velocity of light did not change a millionth in value for a variation in intensity from 1 to 250.

HOW THE INTERIOR OF THE GREAT PYRAMID WAS PHOTOGRAPHED.

THE many wonderful results which I have recently seen accomplished in photography, by the aid of the new magnesium flash-light, vividly recall to my mind the experience I had some years ago in attempting to photograph the Kings' Chamber in the great pyramid of Cheops, in Egypt.

The entrance to the pyramid is on the north side, and about the level of the thirteenth step. Accompanied, or rather escorted, by six Bedouin, we lit our candles; straight in and upwards we went till we came to a large block of granite fixed in the roof, which closed the passage to the resting place of the sarcophagus. We pass around it and proceed upwards through a low, close corridor, at the end of which a passage leads to the Queens' Chamber; lined with polished blocks of limestone most accurately fitted together, from which the light of our torches was reflected.

A few steps further, passing through a horizontal passage, we found ourselves in the Kings' Chamber. Before us the mysterious sarcophagus, right ,as it were, in the very heart of hearts of the great artificial mountain.

Warm and tired with our journey, we rested a little while to contemplate the strange room with its single piece of furniture, about which we had read and heard so much. We recalled all the theories which ingenious men had devised to account for its purpose, but confess that the beautiful display of architectural skill in the masonry of the chamber, and the evidence of profound mechanical knowledge, made a much greater impression upon us of the wisdom of those old Egyptians who lived at the very threshold of history.

After musing awhile we betook ourselves to business, setting up our two cameras —a five-eight stereoscopic, and an eight-ten.

We secured an accurate focus by having one of the attendants hold a lighted candle first at one end of the coffer and then at the other, after which several of the Bedouin were detailed to hold the magnesium tapers, which were made of flat and round magnesium wire, twisted and held together by means of thin iron wire. We experienced considerable difficulty in igniting the wire as well as in keeping it burning. At times it refused to burn at all, and more than once I detected the Arabs trying to hide what was left unconsumed, with the intention, no doubt, of selling it to some future travelers and so hoping to secure extra backsheesh for an unexpected pyrotechnic display.

It was utterly impossible to keep any record of the time of exposure, as the varying intensity of the light made it very uncertain.

I then kindled a fire with these fragments of magnesium, just out of range of the lens, also one back of the coffer itself, which made it stand out in bold relief against the wall. We kept the light going by supplying more strips of magnesium until we had used up half a pound, which at that time (1881), cost $60.00 per pound.

Probably ten minutes were consumed in this operation, after which, I assure you, it was with no reluctance, and with as much alacrity as possible, we made our way back through the passages to the outer world of pure air; inasmuch as the chamber,

which is about as big as a good sized room (34x17x19 high), was so densely filled with the vapors of magnesia that it would have suffocated us to remain much longer.

On developing the plates, on my return home, I found the stereo no good, owing to an Arab having advanced his burning taper in front of the lens. The eight-ten turned out a weak, flat negative. I made from this a strong positive by contact printing, and from the positive again a strong negative. I now see how much easier it would have been with the magnesium preparation now in use.

During numerous visits to underground tombs up the Nile I was unable to succeed with the means at my command—slow Carbutt B plates and the very poor method of illumination—and so lost many a wonderful view, which I cannot help regretting to this day.

I failed at Aboo-Simbel, 1000 miles from Cairo, where is located one of the greatest rock-cut temples, with walls covered with beautiful sculptures and hieroglyphics. On arriving at Mt. Sinai, at the Convent of St. Katherine, which lies at the base of the sacred mountain, we were shown the place of the Burning Bush.

The Holy of Holies is most carefully guarded, and we were forced to take off our shoes before entering; however, the camera was allowed within its sacred precincts. We quickly set it up and focused on the altar, which is over the spot where once stood the Burning Bush from which Jehovah spake unto Moses.

A basin of water was supplied to catch the drops from the burning magnesium taper, but when the monks beheld the sacrilegious smoke and fumes, they forced us to stop and unceremoniously cleared us out. O! could we have used then your magnesium flash-powder, how gloriously would we have succeeded, and our object would have been accomplished, notwithstanding the protestations of the monks.

I expect in the near future to again visit these places with my camera, and you may depend upon it I shall take Blitz-pulver with me, and then I shall be certain that my plates are impressed with the wonderful pictures of interiors of tombs and temples which I so reluctantly left behind me in my former visit for want of a proper means of illuminaiton.

I believe there is a wide field open in the direction I have named for the power of the magnesium flash-light.

Very Truly Yours,

WILLIAM H. RAU.

THE ORIGIN AND TECHNOLOGY OF PHOTOGRAPHIC CHEMICALS.

Tenth Paper.—The "Alums."

TO one not familiar with chemistry, the possibility of comprehending the "true inwardness" of the various "alums" is a task "to be taken gently after a good shaking." Practically, alum of commerce is a double salt, either of tersulphate of alumina and sulphate of ammonia or tersulphate of alumina combined with sulphate of potash, and in photography, chrome alum, and possibly ammonia iron alum, the former, a double salt of sulphate of chromium and sulphate of potash, if combined with sulphate of ammonia producing a similar "aluminoid." The ammonia-iron alum is

a double salt of tersulphate of iron and sulphate of ammonia, the iron salt replacing the alumina.

Potassa alum is sometimes made from natural deposits of earths containing it already formed, or from minerals which contain the various elements needed for its formation, called in practice "alum ores." Such ores, or alum stone, native mixtures of sulphate of alumina and sulphate of potassium, are found in Italy. Now, the sulphate of potash mineral, as found in Stassfurt, is used instead of the native minerals of alumina alone, by using clays rich in alumina and free from iron and carbonate of lime. These clays are ground to powder, calcined to render the iron impurities insoluble, and chemical then dissolved by weak sulphuric acid. The sulphate of alumina is obtained in a good state of purity and dissolved in the chemical proportions with sulphate of potash, evaporated to the requisite strength and slowly crystallized to obtain large crystals. Sometimes crystals weighing several tons are shown at exhibitions, though in practice these crystals are either ground or broken to suitable sizes for use.

Ammonia alum has sulphate of ammonia instead of sulphate of potash as the "aluminoid" producer. When finished properly, it resembles potash alum so exactly it cannot be distinguished by ordinary inspection, and in composition it is perfectly analogous to the potash salt. It may be tested readily, and distinguished by rubbing it to powder with caustic lime and a little water, when the odor of ammonia gas is evolved.

Alum, as we know it, comes in large, colorless, octahedral crystals, though occasional cubes come mixed with it, owing to pecularities in the method of crystallization.

These crystals acquire a whitish coating on exposure to the atmosphere, owing to the loss of water of crystallization, and consist of one molecule of sulphate of alumina, one of sulphate of potassa or sulphate of ammonia, and twenty-four of water, in the state of water of crystallization.

The salt is odorless, and has a sweetish, astringent taste and an acid reaction with litmus paper, and dissolves in 10½ parts of water at ordinary temperature, but in about one-third its own weight of boiling water; insoluble in alcohol. When heated it loses about forty-five parts in a hundred of its weight, from water being expelled, leaving a bulky white residue of anhydrous alum. The watery solution dissolves iron and zinc with the evolution of hydrogen, and if water of ammonia is added to the aqueous solution of potash alum, a bulky white precipitate falls, nearly insoluble in an excess of ammonia, but with potash or soda the precipitate formed redissolves when an excess is added.

Nearly all the alums of commerce are contaminated with traces of sulphate of iron, though not over from five to seven parts in a thousand, and this salt can be readily detected by adding a few drops of ferrocyanide of potassium. Alum is not compatible in mixtures containing alkalies and their carbonates, as a precipitate is formed which would cause bad results in photography.

Alum is a powerful astringent, coagulates blood and hardens gelatine, and its use in photography is to harden the gelatine film and possibly to clarify and strengthen it.

Thousands of tons of alum are consumed in the large industries of the United States produced from many mineral substances. One great portion is made from kryolite, a fluoride of aluminium and sodium, procured from mines in Greenland. Other

makers import earths from France and Germany, and much comes from clays found in different parts of this country. In the curious deposit in the "alkali plains" of our great West, in the future, will be enormous manufactures of alum from deposits there, as there are already of borax in the deposits in California, at the borax lakes.

FRANK H. ROSENGARTEN.

From the *Photographic News*.

NEW DEVELOPERS FOR GELATINO-BROMIDE PAPER.

DR. E. A. Just, the well-known manufacturer of photographic papers of Vienna, has just recommended the following formulas for gelatino-bromide paper, if reddish-brown tones, like those of albumen prints, are required:—

A.—Water,	1,000 c.c.
Potassium oxalate,	90 grammes
B.—Water,	500 c.c.
Sulphate of iron,	25 grammes
Citric acid,	2 "
Potassium bromide,	0.2 gramme

Mix it just before use, adding B to A. If 2 to 6 drops of a potassium bromide solution (1 to 50) is added, the tone of the paper will be warmer, and the development slower. For bluish-black tones, the following developer:—

A.—Water,	600 c.c.
Potassium oxalate,	100 grammes
B.—Water,	100 c.c.
Sulphate of iron,	30 grammes
Citric acid,	2 "

Mix just before use. By addition of 2 to 10 drops of potassium bromide solution (1 to 50) the tone is successively altered, at first to pure black, then to brownish black, *i.e.*, without potassium bromide, bluish black; with a small portion of potassium bromide, pure black; with much potassium bromide, brownish black. In mixing the two solutions, solution B must always be added to solution A, as otherwise a precipitate will be formed. For sepia tones the paper is at first developed in the bath for reddish-brown tones, until the half tones are well out, whilst the finer details in the lights are still wanted; then put it in the bath for bluish black tones, where, after being entirely developed, it will be much intensified, and the tone becomes dark brown. If the development proceeds too rapidly the print is rinsed between the first and the second bath with distilled water. After development the print is at once, without being previously washed, immersed for one minute in a solution of—

Water,	500 parts
Acetic acid,	1 part

Or,

Water,	1,000 parts
Hydrochloric acid,	1 part

Then in another similar acid bath, and finally in water. The fixing solution consists of:—

Hypo,	1 part
Water,	10 parts

HERMANN E. GUNTHER.

ON PHOTOGRAPHING OIL PAINTINGS.

[*Translated from Photographische Rundschau.*]

THE copying of oil paintings, especially such as are much darkened by age, is out of the question with ordinary gelatine plates, if there is any desire of reproducing the relative color scale of the originals.

In exposures with ordinary plates we find the yellow, orange and red colors which appear bright lights to the eye will be translated dark, whilst the blue and violet which are in reality dark are rendered light, in many cases even white.

Now as it is absolutely necessary to preserve in the copy the correct values of the painting, to give an idea of its artistic quality, only orthochromatic plates can be employed.

Indeed, not infrequently the orthochromatic plate will discover details in the original which were not perceptible to the eye. This is especially the case with paintings which have become much darkened by age.

As far as concerns the choice of the orthochromatic plate, there are several good brands in the market, but as the amateur usually desires to operate on a small scale it is best to prepare his own plates fresh for the occasion.

By the method we shall detail, any good plate may be converted into an orthochromatic one, at very little cost, and at the same time possess a superiority in sensitiveness and clearness over those purchased ready prepared. They, however, preserve their good qualities only for a very short time, soon deteriorating. Hence, they should be made only in quantity for immediate use.

The process is as follows: I make use of the erythrosin-bath of Drs. Mallmann and Scolik. Ordinary bromide of silver gelatine plates are dusted first with a soft brush to remove any foreign matter, then dipped in a bath consisting of

Water,	200 c.cm
Ammonia,	2 "

These are suffered to lie for a minute.

The object of the bath is to soften the gelatine so that it shall uniformly imbibe the coloring matter and also to increase the general sensitiveness.

On removal from this bath the plate is well drained, the drops around the edge being absorbed with bibulous paper.

It is now placed in the color solution, made as follows:

Erythrosin solution, (Erythrosin, 1 gr., Water, 1000 c. cm.)	25 c.cm
Ammonia,	4 c.cm
Water,	175 c.cm

In this it is left for a minute.

These two baths are sufficient for making twelve plates, but after the seventh plate it is advisable to add to each bath 1 c.cm ammonia.

During the process the dish should be kept covered and moved in both directions.

The bathed plates should be stood up on filtering paper to drain off, and then thoroughly dried. Of course, the whole operation from the very beginning must be conducted in a room very feebly illuminated with ruby light, the drying in absolute darkness.

In putting the plates in the holders as well as in the process of development the greatest care is demanded.

The plates are developed with the ordinary potash developer.

A.—Water, ... 100 c.cm
Neutral sulphite soda, ... 25 grammes
Concentrated sulphuric acid, ... 3-8 drops
Pyrogallic acid, ... 10 grs.

Dissolve and filter.

B.—Water, ... 200 c.cm
Carbonate of potash (pure), ... 90 grammes
Neutral sulphite soda, ... 25 grammes

Dissolve and carefully filter.

For immediate use take

Water, ... 100 c.cm
A.—Pyro solution, ... 3 c.cm
B.—Potash solution, ... 3 c.cm

Of course it is understood that a yellow screen is to be employed, placed back of the lens.

This glass screen is bright or dark in color, according to that of the original.

The screen should be perfectly flat (plate glass), so as to avoid distortion.

The time of exposure is necessarily greatly increased on the interposition of the yellow screen, according to the nature of the painting, from three to tenfold.

Old paintings may be brightened up with glycerine or white of egg, and should, if possible, be copied in direct sunlight.

Reflections may be avoided by inclining the painting slighly inward. The yellow light of petroleum and gas may be employed for reproduction of paintings. This is advantageous for amateurs, who have most leisure for work in photography in the evening, besides, the originals may with much more ease be evenly illumined by artificial light. The time of exposure, owing to the sensitiveness of the plates, is not much increased.

But the greatest advantage in copying at night is the dispensing of the yellow screen. It is only necessary when there is a great preponderance of ultramarine in the coloring, and even then it need be only of a light yellow.

The commercial orthochromatic plates are by no means as sensitive under gaslight as freshly prepared ones.

The copying of old engravings, etc., which have yellowed by age, and which present such difficulties when ordinary plates are used, is done effectually by the use of the bathed plates and lamp light.

On copying photographs, etc., care should be taken to avoid the reproduction of the fibre of the paper. This is prevented by enameling the photograph or by squeezing it down to glass with glycerine or water.

If the picture is now photographed through the glass, the grain of the paper will not show.

Yellowed photographs and old coppered plates may be advantageously copied by placing them under a deep blue glass and using ordinary gelatine plates.

If the originals are very large, and one has not convenient a plate of blue glass sufficiently large, a smaller piece may be placed behind the lens similarly to the yellow screen.

C. SRNA.

CHLORIDE OF SILVER GELATINE EMULSION.

DR. F. MALLMANN and Ch. Scolik, at the December, 1887, meeting of the Club of the Amateur Photographers of Vienna, gave a demonstration of the preparation of chloride of silver gelatine emulsion, the report of which we translate from the *Rundschau*, the official organ of the society.

Photography with chloride of silver gelatine emulsion was made first known in 1881, by Drs. Eden and Pizzighelli. It is peculiarly adapted for glass positives and lantern slides, and for rapid positive paper pictures. The emulsion is about ten times less sensitive than a medium bromide of silver gelatine plate with daylight exposure.

There are two varieties of chloride of silver emulsion for development and for direct copying, and of the variety for producing the image by development there are again two kinds: an acid emulsion, by which brilliant tones are obtained, which is commonly employed, and the ammonical emulsion, which gives darker tones. We shall, at present, demonstrate the preparation of the acid emulsion:

In a glass flask are dissolved 25 gr. gelatine, 200 gr. water, 7 gr. chloride sodium or 6.4 gr. chloride ammonium (either may be used indifferently). The so-called Edelsalz (sal gemmæ) is preferable.

The gelatine should be left to swell up half an hour previously, so that it will dissolve easier.

In a second vessel are dissolved 15 gr. nitrate silver, 100 gr. water.

For the preparation of the emulsion, the vessel containing the gelatine and the chloride of sodium is placed in a water butt at 50 degrees, by which the complete solution of the gelatine is effected.

The silver solution, previously warmed, is now added (under yellow light), gradually to the gelatine solution, with repeated shaking after each addition

The chloride of silver divides up into a fine, creamy emulsion. Without further ripening, it is at once poured out into a glass beaker or dish to set. If the temperature is high, the setting may be accelerated by placing the dish upon ice.

To facilitate the washing which is to follow, the set emulsion should be divided into small shreds. This is accomplished by passing the mass through a sieve, or the ordinary nudel press may be used.

After the washing, which requires from 6 to 24 hours, the emulsion is placed for half an hour in a muslin bag to drain, then transferred to a beaker glass and melted at 50° C., and filtered through cotton or linen.

The emulsion is now ready for pouring.

The addition of aurantia to the emulsion in most cases obviates the use of the yellow screen, only the time of exposure is to be increased three-fold.

Eosin silver combines readily with cyanin, without injuring the sensitiveness of the emulsion or causing inclination to fog. With the yellow screen, the orthochromatic effect is sufficient for vermilion.

MAXIMUM OF LIGHT INTENSITY IN THE SOLAR SPECTRUM.— From a careful study of the solar spectrum, G. Mengarini concludes that there is no fixed position for the relative brightness of different colors. The maximum of the intensity of light is not confined to any particular limit. The limits of variation are wide.—*Rend. della R. Acc. dei Lincei.*

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting of the Society was held February 1st, 1888, with the President, Mr. Frederic Graff, in the chair.

The Committee on Membership reported the following as having been elected:

Wm. N. Jennings,	Chas. F. Butler.
Dr. Wm. H. Trueman,	Henry T. Baily.
Jas. Wilson,	Henry Ayres.

The Executive Committee reported that satisfactory progress was being made with the new room, and it was hoped that the next regular meeting could be held there. A lease had been drawn and signed, dating from the date of occupancy.

A vote of thanks was extended to Wm. H. Walmsley & Co., and Wilson, Hood & Co., for their kindness in presenting to the Society the American Annual of Photography, British Journal Almanac, and Photographic Mosaics, all for 1888.

Dr. Chas. L. Mitchell read a paper entitled "A Neglected Method of Silver Printing," and showed in connection with it some very fine specimens of prints upon plain paper. A discussion following relative to the merits of a combined fixing and toning bath for such prints. Mr. John C. Browne stated that while he did not altogether approve of such a method, he had in his possession some prints made and treated in that way in the year 1856, and that they are apparently as good now as when new.

Mr. Bartlett thought by fixing first, and then toning, it was possible to regulate the tone better, the red color being a good basis to build upon.

Mr. Browne called attention to the danger in the use of some of the makes of flash powders for photography at night; containing, at times, chlorate of potash, sugar, nitrate of potash, bichromate of potash, and picric acid, in addition to the magnesium; the resultant was a highly dangerous explosive compound. Several members thought that the fumes arising from the combustion were irritating and might be injurious.

Dr. Mitchell did not regard the smoke as a source of danger, the visible portion being principally calcined magnesia.

Mr. Carbutt and Mr. Bartlett stated that their powders were very simple in composition and entirely free from danger if properly used. The powder should be fired by a long taper from the side, or by an automatic arrangement, so as to insure the hand of the operator to be at a safe distance.

Mr. Bartlett mentioned that a more natural expression in the eye could be obtained where flash powder is used for portraits, by having the room well illuminated by gas or lamp light, as the flash, when it comes, does not appear so vivid to the sitter.

Adjourned.

JOHN G. BULLOCK, *Secretary pro tem.*

A BODY which remains in a solid or liquid state when heated to a very high degree without being converted into a vapor or gas, gives a continuous spectrum like the sun. Magnesium, when supplied with oxygen, is converted into magnesia, which becomes highly incandescent, and is not volatilized. It therefore gives a continuous spectrum rich in the rapid, short wave vibrations.

Building in which the Convention of the P. A. of A. will be held, July 10-14 (1888) inclusive.

PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

THE Executive Committee of the P. A. of A. assembled at the Southern Hotel, St. Louis, Mo., January 11th, at 10 A.M., President Decker in the Chair. There were present: E. Decker, W. H. Potter, G. M. Carlisle, C. W. Motes, F. W. Guerin; and officers of 1887 as follows: G. Cramer, James Landy, C. Gentile, and W. H. H. Clark.

A motion was made to change the location of our next convention from Minneapolis to Detroit. The motion was unanimously negatived.

In order to encourage a large attendance at our next convention Mr. Cramer offered a prize of $100 cash to be allotted as follows: Numbers beginning with 1, and corresponding with numbers upon the receipts for dues, shall be placed in a box, and the first number drawn therefrom shall win the prize, provided, however, that the holder thereof shall be in attendance. If the holder of the lucky number shall not have attended the convention, another drawing shall be had, and so on, until a receipt shall be personally produced, corresponding with the number drawn. The drawing shall take place at the close of the second day's session.

Mr. Motes moved that we accept Mr. Cramer's liberal offer with thanks.

The Auditing Committee reported the books of the Secretary and of the Treasurer correct.

The report of the Local Secretary, C. Gentile, was read, whereupon it was ordered that the Local Secretary be paid the balance in his favor of $44.39. The bill of $31.21 presented by E. & H. T. Anthony & Co., for expense on account of the foreign exhibits, was approved and ordered paid.

President Decker, considering the number of officers in the immediate neighborhood of St. Louis and the saving of time and expense, called the Executive Committee in session here, with the expectation of sending a committee of two, later on, to Minneapolis to make the necessary arrangements.

On motion it was ordered that Mr. G. M. Carlisle, and W. H. Potter go, as soon as possible and convenient, to Minneapolis, select the halls, and make all arrangements for holding the next convention some time in July, 1888.

The Secretary was made a committee on railroads.

Committee on Stationery: The Secretary and Treasurer.

On Foreign Exhibits: B. French & Co., E. & H. T. Anthony & Co., G. Gennert.

On Progress of Photography: W. H. H. Clark.

On Stenography: G. M. Carlisle.

The programme adopted contains no novelty.

PRIZE MATTERS.

EXHIBITS.

Each exhibitor is limited to six pictures in any one class.

All entries must be made on or before the day previous to the opening of the convention. Application by mail shall be considered an entry.

Resolved, That the executive committee shall appoint one judge, the competing exhibitors one, and these two the third judge, and these judges shall award the association prizes. The names of the competing exhibitors' choice shall be handed to the secretary before the close of the first session, otherwise the executive committee shall appoint all the judges.

PRIZES FOR EXHIBITS BY MEMBERS OF THE ASSOCIATION RESIDING IN THE UNITED STATES AND CANADA.

Class A., Portrait Photography. Any size not less than 13 inches in length. 1 gold, 1 silver, and 1 bronze medal.

Class B., General Pictures. Not less than 13 inches in length. 1 gold, 1 silver, and 1 bronze medal.

Class C., Portrait Photography. All sizes less than 13 inches in length and larger than cabinets. 1 gold, 1 silver, and 1 bronze medal.

Class D., Cabinets. 1 silver medal and 1 bronze medal.

Class E., Landscape Photography. 1 gold, 1 silver, and 1 bronze medal.

Class F., Marine Views. 1 silver and 1 bronze medal.

Class G., Interiors. 1 silver and 1 bronze medal.

Class H., Architectural Photography. 1 silver and 1 bronze medal.

Class I., Transparencies. 1 silver and 1 bronze medal.

Class K., Photography applied to Science. 1 silver and 1 bronze medal.

Class L., Plain Enlargements. 1 gold, 1 silver, and 1 bronze medal.

Two silver medals shall be provided to be awarded by the executive committee for such improvements, inventions or discoveries, as shall be deemed worthy of such recognition.

FOR FOREIGN EXHIBITS.

For best exhibit of portrait photography. 1 gold and 1 silver medal.

For best exhibit of landscape or marine views. 1 silver and 1 bronze medal.

The Secretary shall furnish each member of the awarding committee a list of all competing entries, certified to by the treasurer that all such competitors are members of the Photographers' Association of America, and not in arrears for dues.

The Secretary shall also furnish each of the judges a schedule of prizes to be awarded, and the necessary instructions as ordered by the executive committee as follows:

INSTRUCTIONS TO JUDGES.

Each Judge shall separately make his examination of the competing exhibits and decide upon the merits of the same, giving in each class No. 20 as the best, No. 19 to the second best, and so on according to the number of medals offered.

The Awarding Committee shall have a special meeting before the Friday morning session, combine reports, and come to a final conclusion by striking an average, and awards shall be made accordingly.

BLAIR CUP.

SUBJECT FOR COMPETITION.—"HIAWATHA."

The winner of the cup shall sign an agreement to take and hold the cup subject to all the rules and conditions made by the donor thereof and the executive officers of the Association.

RULES TO BE OBSERVED BY COMPETITORS FOR ASSOCIATION PRIZES.

1st. All competing exhibits must be from negatives made since the Chicago Convention, August, 1887.

2d. Any person desiring to compete for prizes must remit dues to G. M. Carlisle, Treasurer, Providence, R. I., on or before making entries.

Members, annual dues, two dollars.

New members, initiation fees and dues, five dollars.

The Treasurer shall furnish the necessary blanks for entries, which must be filled and forwarded to W. H. Potter, Secretary, Indianapolis, Ind. All entries are to be in the hands of the Secretary the day previous to the opening of the Convention.

No exhibit shall be received unless the freight or express charges shall have been paid by the owner.

Resolved, That the exhibition of photographs connected with our Convention shall be considered an art exhibition, pure and simple; and, in order not to detract from this standard, be it

Resolved, That no sign of any description shall be allowed in the halls devoted to the display of photographs, except one card to every exhibit; said card not to exceed twenty inches in length, and to contain only the name and address of the photographer whose work it represents.

Resolved, That any picture may have its title, or subject, neatly inscribed thereon, but nothing of an advertising nature shall be permitted. Each picture shall be

marked with a letter signifying the class in which it competes, and duplicates of said picture shall be excluded from any other class.

All exhibits must remain on exhibition until the close of the Convention.

Resolved, That Vice-President F. W. Guerin shall have charge of the art department, and shall be charged with the duty of removing all objectionable features, and see to the enforcement of these rules.

Resolved, That a certificate shall accompany each award.

Committee on Medals and Certificates, F. W. Guerin, E. Decker, James Landy.

DEALERS' DEPARTMENT.

Proper arrangements shall be made for the dealers. The price for space will be hereafter announced. No dealer shall be permitted to transact business in the stock department without securing space for that purpose.

The following committee was appointed by the Chair to formulate a plan of life insurance, and report to the Minneapolis Convention: G. M. Carlisle, C. W. Motes, W. H. Potter.

It was moved and carried that the Treasurer's bond be fixed at $2000.

The President is authorized to appoint a practical photographer as delegate to the International Congress, to be held in Brussels, Belgium, in 1888, without expense to the Association.

A cordial invitation is hereby extended to all foreigners connected in any way with photography, to attend our Ninth Annual Convention at Minneapolis.

W. H. POTTER, *Secretary Executive Committee.*

In order that parties interested should have full information as to all rules and regulations in connection with the Blair Cup, the following is subjoined, as adopted at the Chicago Convention, 1887.

"It was then moved and seconded that the following rules and conditions be adopted to govern the competitions for the Blair cup.

1. No picture having been previously entered in competition shall be allowed to compete for this cup.

2. Nothing of an advertising nature shall be permitted to be used in these competitions.

3. The award shall be made by a committee of three to be appointed by the Executive Committee.

4. The Executive Committee shall select a subject each year to be illustrated, and no other picture shall be eligible.

5. The award shall be made for the most meritorious photograph illustrating the subject selected the year previous.

6. The winner shall be custodian of the cup until the next convention.

7. It shall be necessary for the cup to be won twice by the same person before it becomes his property.

8. In the event of the cup not being won twice by the same person after having been competed for three times, it shall become the property of the Association to be disposed of as the Executive Committee shall determine.

9. Sections 4 and 5 of these rules shall not apply to the first competition, 1887, for the cup.

Carried unanimously August 7, 1887.

H. S. BELLSMITH, *Secretary.* G. CRAMER, *President.*

OUR ILLUSTRATION.

The photographs for this month's JOURNAL were made by the flash-light from McCollin & Co.'s remarkable compound called Blitz-pulver.

The results as regards fullness of exposure are remarkable. The oxygen-supplying bodies in this compound give with ignition a very high state of incandescence to the particles of magnesium oxide produced during combustion. Hence the great value of the Blitz-pulver as a photographic agent.

We are glad to find that professionals, who are often justly accused of conservatism, are awaking to a sense of the importance of the new light which, is not a passing novelty, but a powerful medium for securing artistic effect. The photographs which embellish this number of the JOURNAL are the work of two professionals, Mr. J. C. Cassebaum, operator for Joseph Husted, of this city, and Mr. M. R. Hemperley, operator for Gilbert & Bacon, also of Philadelphia.

Messrs. Gilbert & Bacon have used the Blitz-pulver with great success in securing photographs of invalids in their own rooms. Mr. G. Rockwood, of New York City, and others are enthusiastic over the excellent results possible with the new light.

From our own experience we prefer the naked light unscreened, inasmuch as it gives those beautiful touches of high light which make a picture artistic. If a screen is desired, it should not be so placed as to cast a shadow upon the background or sitter. In some cases a thin screen directly over the head may be advantageous, but all such arrangements depend upon the artistic effect desired, subject to the individual judgment of the photographer.

The variety of lighting capable gives a broad scope to the exercise of taste. Photographs may be made to look like copies from fine paintings after the old masters, and those who delight in the Rembrandt style of lighting may revel in it to their heart's content.

We have elsewhere spoke of the brilliancy of the eyes, and, also of the cause and prevention of staring in the expression. In conclusion we echo the warning of the editors of Anthony's *Bulletin* and Scovil's *Times* to banish all such flash-lights as contain chlorate of potash, picric acid, bichromates and other highly dangerous compounds. If our readers are in doubt whether their compound contains picric acid, it will at once tell on itself if questioned, by the yellow color in solution, and the intensely bitter taste which the slightest particle escaping in the air will produce. *Do not for the world, however, test the solution for this bitterness by tasting, as it is intensely poisonous: a fraction of a grain being sufficient to kill the office cat.*

IN the April number of the AMERICAN JOURNAL OF PHOTOGRAPHY we gave a formula for reduction of intense gelatine plates, which the French journal, *Progrès Photographique*, appropriated without giving credit. (*Progres Photographique*, November, 1887, page 216.)

RÉDUCTION DES CLICHÉS TROP INTENSES.

Perchlorure de fer,	4 gr.
Acide citrique,	8 "
Alun de chrôme,	3 "
Eau,	1,000 c. c.

Plongez le négatif, dense, dans cette solution, pendant quelques minutes, puis, dans un bain d'hyposulfite à 15%; après quelques secondes, surveillez le degré de réduction; ce réducteur est très énergique, et par un trop long séjour dans l'hyposulfite, l'image finirait par disparaitre entièrement. Lavez à fond en sortant de l'hyposulfite.

The editor of the *Philadelphia Photographer* has unwittingly translated the above for the benefit of his readers in his last issue, but has naturally given the credit to the French journal.

The reducer is a most excellent one, and we feel gratified that the *Progrès*, as well as the *Philadelphia Photographer*, should give it publication, even although credit is not given to whom credit is due. Nevertheless, we cannot help regretting that in its passage back to its original tongue, it should have become a mongrel.

1,000 c. c. is a pretty near equivalent for 32 English ounces, but we see no reason why the translator should give the water in French measure, and the solid chemicals in English weight.

As originally published our formula is:—

Per-chloride of Iron	60 grains.
Citric acid	120 "
Chrome alum	40 "
Water	32 ounces.

Immerse the dense negative in above solution for a few minutes; then remove to solution of hypo and water, ordinary strength, and after a few seconds, note the degree of reduction. This reducer is very energetic, and if the plate is allowed to remain too long in the hypo, the image will entirely disappear. Wash thoroughly after removal from hypo.

If our contemporary had taken the formula from its original source his readers might have had the benefit of it ten months ago.

JOHN BARTLETT, editor of the AMERICAN JOURNAL OF PHOTOGRAPHY, speaking before the Amateur Photographic Club on the "Art Value of the Instantaneous Flash Light," claimed for the latter the following advantages over daylight in portrait photography, viz.: "With the instantaneous light any variety of illumination may be had simply by shifting the source of light. While the intensity of the light emanating from burning magnesium is considerably less than that of the sunlight, its actinic energy is about equal to one-third the power of the great luminary's rays; consequently the light though powerful is soft, and there are no harsh contrasts like those produced by photographs taken in direct sunlight. Direct shadows, so effective in a work of art, have hitherto been excluded from photography, but with the flash-light they contribute much to the beauty of the picture, giving relief, pleasing contrast and a degree of naturalness which is delightful. From an artistic point of view we prefer the direct light, unscreened by ground glass or translucent paper. When subdued the effect is more like daylight work; besides, those beautiful lines of high lights along the nose, upon the cheeks and on the forehead, which never appear in daylight photography, are lost."—*Phila. Public Ledger, Feb. 2, 1888,*

FEBRUARY, BARGAIN LIST.

Accessories:

1—Lever Stand, 8x10, ... 5 00
1—8 in. Burnisher, ... 7 00
1—8x10 Hough's Exterior Ground, new, light left, ... 11 50
1—8x10 Exterior Ground, good condition, ... 10 00
2—Spencer Head-rests 11 00
1—Pharaoh Position Chair . . . 16 00
1—8x10 Eastman's Roll Holder, good as new 20 00
1—8x8 Seavey Ground, new, light right 15 00
British Journal Almanacs for 1878 20
Photo Mosaics for 1883, ... 20
1—No. 72 Osborne bridge good as new, ... 8 00
1—8x10 Plain ground 4 50
1—Bryant rustic gate 4 00
1—Seavey balustrade 14 00
1—Rustic corner chair 5 00
1—Knickerbocker stand, with 14x17 top 12 00
1—8x10 Osborne's interior background, new, light left . . . 20 00
1—4x8 Osborne's side slip . . . 7 50
Negative boxes, odd sizes, each . 20
1—Adjustable arm Position Chair 12 00
1—Osborne stile, new 4 50
1—4oz. Porcelain mortar and pestle 35
1—6 in. Porcelain mortar and pestle 50
Pearl leads, the best retouching point in the market, each . 15
Interchangeable View Albums, 7x10, for 5x8 views, with removable leaves fastened by cord, each 1 35
Job Lot Fine Cabinet Plush Frames, each 60
8x10 Job Lot Picture frames; write for particulars.

Desiring to reduce our stock, we will sell for a short time.

	PER DOZ.
5x8 Woodbury Dry Plates . . .	80
4¼x6½ " " . . .	65
6½x8½ " " . . .	1 15
6½x8½ Triumph " . . .	85
5x7 " " . . .	55
4¼x6½ " " . . .	45
5x8 Neidhardt " . . .	65
4x5 Bridle " . . .	35

Camera Boxes:

1—4x5 Bijou Camera, and two holders, ... 8 00
1—5 x 8 American Optical Co. Camera, ratchet bed, two double dry plate holders, extension triod, and Darlot rapid Hemispherical Lens . . . 35 00
1—4x5 Novalet Camera shoulder, new 10 50
1—11x14 Blair reversible back, extension front view, box and and 3 holders, ... 40 00
1—5x8 Tourist Outfit, including 5x8 Tourist Camera Box, 2 Daisy Plate Holders, 1 Extension Tripod, and 1 Canvas Carrying Case, very little used. Price, new, $40.50, will sell for 30 00
1—6½x8½ camera, with ratchet bed, ground glass and wet holder 3 00
1—4x5 '76 outfit 15 00
1—10x12 Cone View Camera, Double Swing, new 52 80
1—11x14 New Haven Reversible Back Camera, Double Swing, new 44 00
1—14x17 New Haven Acme Portrait Camera, Single Swing, new 46 00
1—4x4 Standard Portrait Camera wet holder, new 14 75
1—4x5 Flammang revolving back Camera, new, ... 25 00
1—4¼x5½ No. 202 A. Scovill Outfit 20 50
1—6½x8½ View Camera and Lens 12 00
1—5x8 Wet Plate Stereo Camera, 3 holders, case and tripod . 25 00
1—6½x8½ American Optical Co., first qual. View Camera . . 23 00
1—4¼x5½ Ex. qual. Portrait Camera 17 50
1—5x8 American Optical Co., Stereo Camera 25 00
1—6½x8½ Standard Portrait Camera, with holder 13 60
1—5x8 Blair View Camera, single swing 17 00

Lenses:

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1—4x4 Tench Portrait Lens. This was made by Dallmeyer's foreman and is the same combination as his No. 3, A list, $224.00, will sell for 90 00
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1—Prosch Shutter, No. 2, Pneumatic release	10 00
1—Matched pair German Stereoscopic Lenses, in good order	15 00
1—5x8 Dallmeyer View Lens	15 00
1—Woodward Condensing Lens.	10 00
1—4x4 Darlot Globe Lens	25 00
1—4x4 " " "	20 00
1—5x8 Abendroth wide angle view lens	18 00
1—⅓ size L. W. Krantz Portrait Lens	12 50
1—½ size C. C. Harrison portrait lens	8 00
1—¼ size portrait lens	3 00
1—½ size Darlot quick acting Portrait Lens, central stops	18 00
1—No. 6, 17x20 Darlot wide-angle Hemispherical Lens	40 00
1—Extra 4x4 Chapman Portrait Lens	20 00
1—8x10 E. A. View Lens	5 00
1—5x8 Darlot View Lens	2 00
1—4x5 Harrison & Schnitzer View Lens	2 00
1—Ross View Lens	5 00
1—H. Fitz Double View Lens, revolving stops	8 00
1—8 x 10 Voigtlander Portrait Lens	80 50
1—4x4 Dallmeyer Group Lens	50 00
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